Remarks

Reconsideration of this application as amended is respectfully requested.

Claims 1-6 and 13-15 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 5,956,267 of *Hurst et al.* ("*Hurst*").

Claims 1-9 and 13-15 stand rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Patent No. 5,587,943 of *Torok et al.* ("*Torok*").

Claims 1-3 and 10-12 stand rejected under 35 U.S.C. § 102(e) as being unpatentable over U.S. Patent No. 6,168,860 B1 of *Daughton* ("*Daughton*").

Claims 1-8 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hurst*.

The Examiner has objected to claim 11 due to a typographical error. In response, applicants have amended claim 11 to correct the error.

The Examiner has rejected claims 1-6 and 13-15 under 35 U.S.C. § 102(e) as being anticipated by *Hurst*. Applicants respectfully submit, however, that amended claim 1 is not anticipated by *Hurst*. Amended claim 1 is a magnetic memory cell that includes the limitations

> sense layer for storing a magnetization state that indicates a logic state of the magnetic memory cell;
>
> structure that prevents disruptions to the magnetization state in the sense layer, the structure applying a magnetic field to a set of edge regions of the sense layer in a direction substantially perpendicular to an easy axis of the sense layer.

(Amended claim 1, emphasis added).

Hurst does not disclose a magnetic memory cell with a structure that applies a magnetic field to a set of edge regions of a sense layer in a direction substantially perpendicular to an easy axis of the sense layer as claimed in amended claim 1. Instead, *Hurst* discloses a word line structure having a magnetic field

keeper that increases magnetic field strength in a bit region during write operations. (*Hurst*, col. 7, lines 6-15). It is submitted that the word line structure with keeper of *Hurst* would increase the magnetic field in a direction that is parallel to the easy axis of the bit region rather than perpendicular as claimed in amended claim 1.

Moreover, *Hurst* does not disclose a structure that prevents disruptions to the magnetization state in a sense layer as claimed in amended claim 1. Instead, the magnetic field keeper of *Hurst* is separated from a bit region by a dielectric layer 60. (*Hurst*, Fig. 13 and col. 6, lines 21-25).

Given that claims 2-12 depend from amended claim 1, it is submitted that claims 2-12 are not anticipated by *Hurst*.

It is also submitted that amended claim 13 is not anticipated by *Hurst*. Amended claim 13 contains limitation similar to those in amended claim 1. Therefore the remarks stated above with respect to amended claim 1 also apply to amended claim 13.

Given that claims 14-15 depend from amended claim 13, it is submitted that claims 14-15 are not anticipated by *Hurst*.

The Examiner has rejected claims 1-9 and 13-15 under 35 U.S.C. § 102(b) as being anticipated by *Torok*. Applicants respectfully submit that amended claim 1 is not anticipated by *Torok*. *Torok* discloses a cell with a permalloy keeper layer 402 that provides a flux closure path for a storage film (*Torok*, col. 12, lines 16-19) rather than a structure that prevents disruptions to magnetization in a sense layer as claimed in amended claim 1. It is submitted that the permalloy keeper of *Torok* would increase the magnetic field in a direction that is parallel to the easy axis of the storage film

rather than perpendicular as claimed in amended claim 1. Furthermore, *Torok* does not disclose a structure that applies a magnetic field to a set of edge regions of a sense layer in a direction substantially perpendicular to an easy axis of the sense layer as claimed in amended claim 1.

Given that claims 2-12 depend from amended claim 1, it is submitted that claims 2-12 are not anticipated by *Torok*.

It is also submitted that amended claim 13 is not anticipated by *Torok*. Amended claim 13 contains limitation similar to those in amended claim 1. Therefore the remarks stated above with respect to amended claim 1 and *Torok* also apply to amended claim 13.

Given that claims 14-15 depend from amended claim 13, it is submitted that claims 14-15 are not anticipated by *Torok*.

The Examiner has rejected claims 1-3 and 10-12 under 35 U.S.C. § 102(e) as being anticipated by *Daughton*. Applicants respectfully submit that amended claim 1 is not anticipated by *Daughton*. *Daughton* discloses coupling of soft magnetic films to hard magnetic films (*Daughton*, col. 3, lines 31-34) rather than a structure that applies a magnetic field to a set of edge regions of a sense layer in a direction substantially perpendicular to an easy axis of the sense layer as claimed in amended claim 1.

Given that claims 2-12 depend from amended claim 1, it is submitted that claims 2-12 are not anticipated by *Daughton*.

The Examiner has rejected claims 1-8 and 13-15 under 35 U.S.C. § 103(a) as being obvious in view of *Hurst*. The Examiner has stated that the prior art "discloses all of the limitations of claims 1-8 except for indicating whether the reference or the sense layer is adjacent to

the keeper structure." (Page 4, Office Action, 5-4-2001). The limitations on the positioning of the reference and sense layers are recited in claims 6-8 which depend from amended claim 1.

Hurst does not disclose or suggest magnetic memory cell with a structure that applies a magnetic field to a set of edge regions of a sense layer in a direction substantially perpendicular to an easy axis of the sense layer as claimed in amended claim 1. Moreover, *Hurst* does not disclose or suggest a structure that prevents disruptions to the magnetization state in a sense layer as claimed in amended claim 1. Therefore, applicants submit that amended claim 1 is not obvious in view of *Hurst*.

Given that claims 2-12 depend from amended claim 1, it is submitted that claims 2-12 are not obvious in view of *Hurst*.

It is also submitted that amended claim 13 is not obvious in view of *Hurst*. Amended claim 13 contains limitation similar to those in amended claim 1. Therefore the remarks stated above with respect to amended claim 1 and nonobviousness in view of *Hurst* also apply to amended claim 13.

Given that claims 14-15 depend from amended claim 13, it is submitted that claims 14-15 are not obvious in view of *Hurst*.

It is respectfully submitted that in view of the amendments and arguments set forth above, the applicable objections and rejections have been overcome.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 08-2025 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: 8-16-01 By: _____

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Version with Markings to Show Changes Made

1. A magnetic memory cell, comprising:

sense layer for storing a magnetization state that indicates a logic state of the magnetic memory cell;

structure that prevents disruptions to the magnetization state in the sense layer, the structure applying a magnetic field to a set of edge regions of the sense layer in a direction substantially perpendicular to an easy axis of the sense layer.

4. The magnetic memory cell of claim 1, wherein the structure is formed from a permeable ferromagnetic material having an easy axis that is substantially perpendicular to [an] the easy axis of the sense layer.

11. The magnetic memory cell of claim 10, wherein the hard ferromagnetic material is magnetized perpendicular [the] to the [an] easy axis of the sense layer.

13. A magnetic memory cell, comprising:

sense layer for storing a magnetization that indicates a logic state of the magnetic memory cell;

means for providing flux closure for one or more demagnetization fields in the magnetic memory cell and for applying a magnetic field to a set of edge regions of the sense layer in a direction substantially perpendicular to an easy axis of the sense layer.

15. The magnetic memory cell of claim 14, wherein the permeable ferromagnetic material has an easy axis that is perpendicular to [an] the easy axis of the sense layer.